

- b) at least one oxidizable epoxy or anhydride functional polybutadiene; and
- c) at least one metal salt catalyst.

Laplante, et al certainly show ethylene vinyl alcohol oxygen barrier polymers, a butadiene oxygen scavenger, and a metal salt catalyst. However, they do not show an epoxy functionalized polybutadiene nor an anhydride functional polybutadiene oxygen scavenger. The examiner admits that Laplante, et al fails to teach anhydride functional polybutadienes.

The examiner attempts to overcome this deficiency by citing Cahill, et al. While Cahill, et al does generally pertain to packaging articles containing oxygen scavengers, they do not pertain to inclusion with ethylene vinyl alcohol copolymer containing compositions. Contrary to the examiner's position, Cahill, et al do not even show the existence of an epoxy or anhydride functional polybutadiene, much less do they have anything whatsoever to do with a hypothetical composition including ethylene vinyl alcohol copolymers. With regard to Cahill, et al, the examiner points to col. 5, lines 38 and 47-54 and claims 19 and 23 for the use of maleic anhydride modified polybutadiene in copolymers that scavenge oxygen. This is incorrect.

Cahill, et al form an oxygen scavenging copolymer formed by reacting two parts, an oxygen scavenging moiety (OSM) and an addition polymer. These resultant oxygen scavenging copolymers may be added to packaging polymers such as polyolefins. See column 5, lines 27, et seq.

Oxygen scavenging moiety + addition polymer = oxygen scavenging copolymer

Column 5 line 36, et seq., oxygen scavenging moieties include polypropylene, poly(4-methyl)-1-pentene, polybutadiene and polypropylene oxide. Notice there is no disclosure of an epoxy or anhydride functional polybutadiene. Addition polymers are disclosed to be polycarbonates, polyamides, polysulfones, polyols, polyethers and polyketones (see col. 12, lines 18-20). The addition polymers may have esterification sites. But if none are present, the addition polymers may be provided with esterification sites with maleic anhydride. It is the addition polymers which are made anhydride functional, not the polybutadiene (see col. 5, lines 42, et seq.). There is not even any suggestion that there is a hypothetical formation of an anhydride functional polybutadiene when a polybutadiene oxygen scavenger would be reacted with an anhydride functional addition polymer, since there is no indication that the resulting oxygen scavenging copolymer has any anhydride functionality. Even assuming that such were hypothetically the case, and such is not admitted, there is no suggestion that such result would be compatible with or suitable for combination with an ethylene-vinyl alcohol copolymer for producing an oxygen-scavenging polymer composition.

There is simply no suggestion from either reference that they could or should be combined, and even if so hypothetically combined, there is simply no resulting oxygen-scavenging polymer composition consisting essentially of:

- a) at least one ethylene vinyl alcohol copolymer;
- b) at least one oxidizable epoxy or anhydride functional polybutadiene; and
- c) at least one metal salt catalyst.

While Cahill, et al show non-ethylene vinyl alcohol oxygen barrier polymers and a metal salt catalyst, there is also no oxidizable epoxy or anhydride functional polybutadiene from Cahill, et al, nor any suggestion that such could or should be substituted into in the composition of Laplanche, et al. There is nothing to suggest that an oxidizable epoxy or

anhydride functional polybutadiene would be compatible with a ethylene vinyl alcohol oxygen barrier polymers and a metal salt catalyst. There is nothing to suggest that any benefit would emerge from a combination of an ethylene vinyl alcohol oxygen polymer, a metal salt catalyst and a oxidizable epoxy or anhydride functional polybutadiene. There is nothing here to motivate one skilled in the art to form an overall composition comprising a ethylene vinyl alcohol copolymer; an oxidizable epoxy or anhydride functional polybutadiene; and a metal salt catalyst. While it might be desirable in to make useful oxygen-scavenging polymer composition articles, this is not the type of motivation required by 35 U.S.C. 103. The motivation required would be to find a combination comprising a ethylene vinyl alcohol copolymer; an oxidizable epoxy or anhydride functional polybutadiene; and a metal salt catalyst. This combination is utterly devoid from any combination of the applied references. There is simply nothing therein to suggest that they should be combined. It is submitted that the examiner is reconstructing the art in light of applicant's disclosure.

Appellants submit that the Examiner is looking beyond the teachings of the references. A reference has to offer sufficient motivation for one skilled in the art to achieve the desired result. In the instant case, the motives in the references, as disclosed by the practices therein, are quite different from those in the instant invention. The present invention, therefore, is not made obvious by the combination the Examiner has suggested, and the 35 U.S.C. 103 rejection should, therefore, be withdrawn. "Obviousness cannot be established by combining the teachings of the prior art to produce the claimed invention, absent some teaching, suggestion or incentive supporting the combination." In re Geiger, 2 U.S.P.Q.2d 1276, 1278 (CAFC 1987). There is no motivation to combine that with the other references to arrive at the instant invention. The Examiner appears to be going to great lengths to locate and try to interrelate the references, but no matter how one applies or combines these references they do not teach using the specific combination of

components to attained the demonstrated benefits. The invention cannot be deemed unpatentable merely because, in a hindsight attempt to reconstruct the invention, one can find elements of it in the art; it must be shown that the invention as a whole was obvious at the time the invention was made without knowledge of the claimed invention. 35 U.S.C. 103. When selective combination of prior art references is needed to make an invention seem obvious, there must be something in the art to suggest that particular combination other than hindsight gleaned from the invention itself, something to suggest the desirability of the combination. Uniroyal, Inc. v. Rudkin-Wiley Corp., 5 U.S.P.Q.2d 1434, 1438 (CAFC 1988). Such a suggestion is absent in the cited references. For these reasons it is requested that this ground of rejection be withdrawn.

Claim 10 stands rejected under 35 U.S.C. 103 (a) as being obvious over Laplante in view of Cahill, et al as applied above and further in view of applicant's alleged admission at page 3 of the specification. It is respectfully submitted that this ground of rejection is not well taken. The arguments over Laplante, et al and Cahill, et al apply equally here and are repeated from above. Applicant makes no such admission on page 3 of the specification. This portion of the specification does nothing more than to indicate that techniques are known to provide a modified EVOH to make it retortable. Even in these examples where retortable EVOH remains clear after retort, such retortable EVOH still exhibits moisture sensitivity as well as retort shock, in which the moisture is trapped in EVOH layer and thus worsens the oxygen barrier. There is nothing in the applied art which indicates that such retortable EVOH is in any way compatible with an oxidizable epoxy or anhydride functional polybutadiene and a metal salt catalyst. While retortable EVOH may be known in the art, there is simply nothing in Laplante, et al and Cahill, et al combined with the mere existence of retortable EVOH to teach or suggest an oxygen-scavenging polymer composition that consists essentially of at least one retortable ethylene vinyl alcohol copolymer, at least one epoxy or anhydride functional polybutadiene and at least one metal salt catalyst. The examiner alleges that the citations are analogous because they both deal with EVOH. This is incorrect. The examiner is

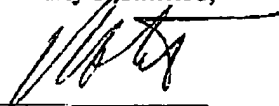
asked to point to the specific column and line numbers of Cahill, et al where compatibility with EVOH is even mentioned. For these reasons it is submitted that the rejection should be withdrawn.

Claims 18, 25 and 45 stand rejected under 35 U.S.C. 103 (a) as being obvious over Laplante in view of Cahill, et al as applied above and further in view of Tai et al. (EPO 1033080 A2). It is respectfully submitted that the rejection is not well taken. It is respectfully submitted that this ground of rejection is not well taken. The arguments over Laplante, et al and Cahill, et al apply equally here and are repeated from above. Laplante, et al show ethylene vinyl alcohol oxygen barrier polymers and a metal salt catalyst. However, they do not show an epoxy functionalized polybutadiene nor an anhydride functional polybutadiene. Cahill, et al do not show the use polybutadiene-maleic anhydride adduct and furthermore does not show an admixture with ethylene vinyl alcohol copolymers. There is therefore no suggestion to combine Laplante, et al and Cahill, et al in the first instance. While Tai, et al show the existence of a hydrotalcite clay, such is in a completely different context. Tai et al. teaches an oxygen absorptive resin composition comprising a combination of a thermoplastic resin which may be a copolymer of an aromatic vinyl compound and a diene compound, a gas barrier resin which may be an ethylene vinyl alcohol (EVOH) and a metal salt catalyst. However, Tai et al. fails to teach a composition including a functional polydiene, or more particularly an *epoxy or anhydride functional polybutadiene*.

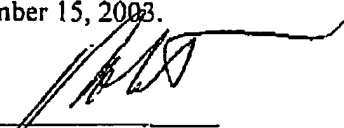
Functional polybutadienes are not disclosed by Tai et al. Rather, the reference discloses non-functional diene compounds used for synthesis of the thermoplastic resin including isoprene, butadiene, 2-ethyl butadiene, and 2-butyl butadiene. No combination of Laplante, et al, Cahill, et al and Tai et al, teach or suggest an oxygen-scavenging polymer composition including each of a) at least one ethylene vinyl alcohol copolymer; b) at least one oxidizable epoxy or anhydride functional polybutadiene; and c) at least one metal salt catalyst, and d) a clay. For these reasons it is submitted that the rejection should be withdrawn.

The undersigned respectfully requests re-examination of this application and believes it is now in condition for allowance. Such action is requested. If the examiner believes there is any matter which prevents allowance of the present application, it is requested that the undersigned be contacted to arrange for an interview which may expedite prosecution.

Respectfully submitted,


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I hereby certify that this paper is being facsimile transmitted to the Patent and Trademark Office (FAX No. 703-872-9310) on September 15, 2003.


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